

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)	
)	
Amendment of the Commission's Part)	
90 Rules in the 904-909.75 and 919.75-)	WT Docket No. 06-49
928 MHz Bands)	

Reply Comments
of Telesaurus Holdings GB LLC

As noted in its Amended Comments in this proceeding, Telesaurus Holdings GB LLC ("Telesaurus") holds the majority of the Location & Monitoring Service Multilateration ("LMS-M") A-block licenses in the nation.¹ Telesaurus and affiliates are briefly described in Attachment 1 and footnote 1 hereto. Telesaurus hereby submits reply comments in the NPRM in this proceeding, and in so doing also augments its filed (amended) comments.

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¹ See Exhibit 1 hereto for a summary of Telesaurus and its affiliates. These Telesaurus LMS-M licenses are for markets with approximately 80% of the nation. These licenses were previously held by Warren C. Havens ("Havens"). Mr. Havens assigned these licenses to Telesaurus earlier this year. Mr. Havens is the majority interest holder in and President of Telesaurus. Telesaurus has affiliates that are also majority owned and managed by Mr. Havens, Telesaurus VPC LLC ("TVL"), Intelligent Transportation & Monitoring Wireless LLC ("ITL"), and AMTS Consortium LLC ("ACL") (the "Telesaurus Affiliates"). Mr. Havens formed and developed TVL, ITL, and ACL in large part to support nationwide development of wide-area Intelligent Transportation System ("ITS") wireless based upon the Telesaurus LMS-M licenses. LMS, with DSRC are the two FCC-designated unique and much needed ITS radio services (47 CFR 90.350).

1. Essential Opposition Position and Request for Termination of NPRM and Proper Conclusion of RM-10403
2. Related Affiliates Comments, And Supporting Materials
3. Telesaurus' Pending Request to Extend the Pleading Cycle
4. LMS-M, the wide-area ITS radio service in the US; LMS-M Used for such ITS affords Spatial and Temporal Separation and Interference Mitigation vs. Part 15 Uses.
5. LMS-M, as the wide-area ITS radio service in the US Is Harmed by the NPRM, and Will Be Seriously or Fatally Damaged by the NPRM's Technical Rights Take Backs
6. LMS-M is PRMS Intended for Advanced ITS Radio Technology and Service--NPRM's Ideas to Convert it to Redundant Flexible CMRS Violates Congressional Intent
7. LMS-M "Flexibility" Should Only Be Granted Upon Showing of Good Cause In Pursuance of Wide-Area ITS Radio Service, or Public Safety Emergency Wireless-- No such Showing has been made yet by any Party, and the NPRM Attempt to Lead the Market is Uninformed, Wasteful, and Contrary to Congressional Intent
8. "Flexibility" Is Inappropriate for Certain Spectrum Services, Such as LMS-M, That Were Deliberately Created by the FCC to Fulfill a Specific Market Need or a Public Safety or Other High-Public-Interest Objective such as ITS
9. "Flexible-Use/ Reduced Power or Time LMS-M will not be Competitive with NPRM's Suggested CMRS or other "Flexible"-Use Services
10. LMS-M for ITS, and Part 15: Compatability.
11. Legal Rights, Due Process, and Other Objections to the NPRM
12. Other: Spectrum Cap is Appropriate.
- Appendix 1: Further, Interlined Comments within the NPRM

- Exhibits

Telesaurus Agrees with the Reply Comments of its Affiliates.
and
LMS-M for ITS Wireless is Entirely Appropriate and Feasible
But Ignored by Progeny and NPRM

Telesaurus agrees with the Reply Comments filed concurrently by the Telesaurus Affiliates, including but not limited to the relevance of the grant by the Bureau of the waiver request by Progeny to extend all of its LMS-M licenses (extension of the construction requirement deadline) (“Extension Request”) (“Extension Grant”) and the related Petition for Reconsideration of the Extension Grant filed by Telesaurus and the Telesaurus Affiliates (the “Extension Petition for Reconsideration”).

Clearly, by a simple review of the record, RM-10403 (Progeny’s position in it, which is all the Bureau considered, which is unlawful), the Extension Request and Extension Grant, and this NPRM are entirely related and interdependent, including since all rest upon the manifestly false speculation that LMS-M under current rules and Commission intent, including terrestrial multilateration and related communications for widearea ITS radio services is “obviated.”

It is obviated only for those who are or who pretend to be ignorant of the basics of modern wireless communications and location technology, and the ITS developments worldwide that are not only entirely viable but fundamentally required for society’s transportation efficiency and safety, and for public and environmental health. No licensee including Progeny, and the other LMS-M licenses supportive of Progeny’s position and the similar NPRM’s ideas, who hold in

public trust² numerous licenses in large parts of the nation (together, nationwide), especially for a high-public-interest ITS purposes could have missed these basics without violating this trust. The FCC, with an obligation to be the expert agency in this matter, also entirely missed this thus far, by adopting the Progeny position from RM-10403 (after nonstop meeting lobbying by Progeny for years, that continues in this NPRM) and entirely ignoring Telesaurus rational and balanced position, as well as all other parties.

Part 15 Status and Trend, and NRPM Ideas Harmful to LMS-M and Part 15

The present part 15 rules have permitted remarkable growth in unlicensed use. Telesaurus supports such uses and growth generally, and intends as a core component of its planned services with all of its LMS-M and other spectrum to use and coordinate with appropriate Part 15 systems. The present Part 15 movement is clearly toward higher frequencies than 902-928 MHz, at 2.4 GHz, 5.8 GHz, etc. where there is far greater amounts of bandwidth available for modern multimedia applications at short ranges, and which mostly do not have licensed services involved. The industry is moving away, by and large from 900 MHz except for special niche applications that can co-exist with LMS-M systems under current rules and purposes, and vice versa. However, the NPRM's proposed rule changes will not only damage or kill viable LMS-M for any wide-area purpose including ITS, but also force it into the space and time and services served by these niche Part 15 operations, thus damaging these as well.

Main "Price" Imposed for LMS-M Licenses is

² Licensees are only granted licenses and may only use them in the "public interest." The Extension Petition for Reconsideration discusses this matter.

ITS-Use Restriction, Not Auction Costs

Progeny seeks, and the NPRM adopted, the idea of allowing use “flexibility” so that LMS-M would not have the current obligations that were clearly and repeatedly explained by the Commission prior to, and for the purpose of, auctioning LMS-M licenses. If the starting prices set for these licenses, and the modest competition in the auction, and the prices paid clearly reflected these obligations. Now, however, Progeny seeks to escape these obligations—the real price of the spectrum. This should not be allowed. Indeed, Progeny failed to perform and demonstrable or even intelligibly articulated due diligence under the old rules to meet the construction obligation. LMS-M must be maintained for ITS purposes. The NPRM and Progeny’s proposals if adopted would kill this, and certainly be challenged on appeal including any required judicial review.

Progeny’s Technical Assertions, Conclusions, and Rule-Change Request are Fundamentally Flawed.

The following section was prepared by Telesaurus with its three principal technical advisors, Dr. Daniel Devasirvatham, Dr. Douglas Reudink, and Dr. Joseph Ho (see Attachment _ for biographical information).

Summary. Progeny, in its Comments, makes various technical assertions and conclusions and rule-change requests that are entirely flawed, contradictory, and if adopted would make LMS-M entirely useless except for very limited-range services that would kill LMS-M for the high-public interest purposes for which the Commission allocated LMS-M and adopted the current rules. (Nor would such stunted service be otherwise viable or in the public interest.) This could not be more clear upon a reading by an person that is expert in wireless technologies or

even an educated lay person. Licensees and Commission staff must have such education and expertise to fulfill their common “public interest” obligations. Both Progeny and FCC staff have failed in this, by arranging for this NPRM and by the content of the NPRM and Progeny’s Comments.

These flawed Progeny technical-based arguments include: (i) alleged interference levels between a grossly overly simplistic one-site, one-way system (that would never be viable) using LMS-M spectrum (but that is not a LMS-S system in that it does not perform the only required LMS-M service, multilateration) and a few indoor Part 15 devices of certain classes (Part 15 is not limited to indoors nor to such classes), and (ii) a rule change involving a proposed Power Spectral Density level that, if adopted, would surrender the almost all of the power allowed under current rules (in exchange for use flexibility for unproven needs and undefined systems) and make all but very limited range wideband technology impossible (current rules allow narrowband and wideband, and narrowband is clearly needed to take advantage of most cost effective location and communication technology and equipment).

Further, Progeny’s position is twice contradictory. Its Comments indicate that it does not want any reduction in power (after proposing that to get this NPRM),³ yet its Power Spectral Density rule-change proposal gives away most all of

³ However, Progeny proposed that it would accept just that in RM-10403, to facilitate a grant of its Extension Request an affective grant of its RM-10403 request for rulemaking (these are entirely interrelated and interdependent). Now it wants to keep the upside (it license extension grant and its licenses, and keep this baseless NPRM going) but to forget about the tradeoff its proposed to get this upside. This certainly appears as, and in any case has the effect of, “bait and switch.” That’s what the FCC gets when it does not do its job as an “expert

the power allowed under current rules. For this reason, and due to the gross defects indicated above and further detailed below, it is clear that Progeny lacks fundamentally technical understanding, and that its proposals that are the foundation of this NPRM entirely fail.

Federal licensed uses not factored in. Parties seeking LMS-M rule changes should demonstrate that they know of current and future uses of LMS-M spectrum by Federal Agencies, and demonstrate how they will not interfere with these, and how they can accept interference from these and still be viable. Progeny has failed to do so. The NPRM itself fails in this. Prior to the first LMS-M auction, the NTIA sent letters to the FCC that the FCC included in due diligence materials for potential bidders, that it has and will maintain priority rights in 902-928 MHz and gave some examples of uses. To determine details and extent of such uses, a party must request information of the various agencies regarding current and planned uses. In addition, since even apart from current and planned uses, NTIA retains priority rights, any planned LMS-M technology and system, and business plan, must have a backup plan to implement if these Federal priority rights are later exercised. Progeny and the NPRM failed to present any such plan in the context of the proposed changes. Telesaurus and Affiliates, as indicated in part in its Amended Comments, have such a contingency plan, including by use of their nearly nationwide licenses in the 217-222 MHz services (AMTS and 220 MHz), and by other methods including specific coordination with Federal agencies who hold the

regulatory agency” to be even fundamentally informed and expert about the regulatory and technical background and underpinnings of a contested proceeding, and for inappropriate reasons accepts the non-stop lobbying of one party (Progeny in this case).

priority rights (the Telesaurus LMS-M plan itself is largely based on fulfilling as their fundamental goal purposes of such agencies, including widearea core ITS wireless and ancillary complementary use for public safety and other responders in major emergencies).

Public Safety. ITS is highly related to and will in large part service public safety agencies's goals and purposes. See Telesaurus's Comments. Public safety has been very concerned about uncontrolled interference at 2.4 GHz in Incident area networks. This has tempered their consideration of ISM Bands. The higher power capabilities of the present LMS rules help mitigate those concerns. Weakening LMS transmissions will only exacerbate public safety concerns of interference into their systems and further serve to reduce their interest in services we hope to offer in this band. This is most unfortunate since there is a sever shortage of spectrum for public safety and public service uses, which this band, and our plans would help alleviate.

Bandwidth. Progeny has a glaring omission in all of their calculations in that the bandwidth of their hypothetical system is never stated. It is impossible to determine system range and SIR (System to Interference Ratio) for both their system and for Part 15 devices if one does not know the bandwidth.

Power control, sectorization, variable modulation, and related. Progeny suggests these in relation to permissible power. However, these are common and useful techniques even without considering their relevance to reduction in interference to Part 15 devices. In the vast majority of the nation, beyond the limited areas of high population and around major facilities, there is little Part 15

use. Thus no rule restriction to require particular power control, sectorization, or other techniques should be considered on this basis. Also, sectorization does not effect EPR, and the current power rule is expressed in ERP.

Authorized power must be available whether or not power control is used, including since one-way broadcast of core ITS data to vehicles (see the Telesaurus Amended Comments) will require use of the authorized power limit for cost effective coverage and robust service. In such broadcast mode, the transmitter is not considering each receiver since the broadcast is of the same information to all receivers. Any sectorization or other special antenna systems are to optimize coverage, not for capacity gain or other purpose. There is no sense in any reduction of power for such broadcast mode, and this mode is essential to widearea ITS wireless as being deployed in EU nations and the Far East and should also be deployed in the US with LMS-M (and complementary spectrum such as Telesaurus and Affiliates' 200 MHz).^{[4](#)}

In addition, multilateration that is most integrated and robust will be (as Telesaurus plans, the details of which are proprietary) based upon the just-noted broadcast of core ITS data, where the timing used in the synchronized multi-site broadcast system are leveraged by the mobile LMS-M units in vehicles to perform terrestrial multilateration (TDOA, TOA, and similar, which can be integrated with GPS multilateration, and ultimately also with inertial guidance and other location

^{[4](#)} Telesaurus and Affiliates are pursuing these matters, of course, on a proprietary basis including under nondisclosure obligations to third parties outside this proceeding. However, after completing legal and business review, Telesaurus intend to submit in this docket a summary of these developments within its legal obligations and business interests.

techniques that can be cost effectively supported, in time, as ITS and related Telematics developments mature). This terrestrial broadcast-based multilateration must also, as with the communication broadcast system, have use of the full authorized power for the same reason noted above.

Part 15 power, including PSD, Cannot Be Used Relative to LMS-M Power.

First, as the Commission decided clearly on Reconsideration in the past LMS-M Rulemaking, in interpreting the “Safe Harbor” rule §90.361, equipment vendors and end users of Part 15 devices simply have no vested rights to use the subject LMS-M (or any LMS-N) spectrum, and user of such devices must accept interference caused by all licensed-spectrum operations including LMS-M (and ISM devices). This acceptance is a fundamental principal in Part 15 rules and use. After extensive lobbying by Metricom and others, the FCC gave Part 15 this Safe Harbor in addition to what is allowed in Part 15 rules, but also with restrictions also imposed verses Part 15 rules, in terms of power reductions if the antenna height is outdoors and beyond a certain low height. Thus, it is fundamentally flawed to even consider LMS-M power in relation to Part 15 power. LMS-M should be viable and built out nationwide for its stated ITS purposes, and Part 15 has no right to be “protected” along the way. There is over 500 MHz available for Part 15 use below 6 GHz alone, including in bands not allocated, like LMS-M and LMS-N for critical public services.

In addition, contrary to Progeny and the NPRM, one cannot rationally use unlicensed Part 15 device power spectral density (“PSD”) as a basis for licensed LMS-M widearea systems permitted power. Part 15 devices in a given wide geographic area have no limit to actual field-strength power spectral density in a

such wide area where LMS-M systems will operate.⁵ That is what would cause interference, not per se transmit power from one or more base or mobile transmitters. Neither Progeny, nor the NPRM, nor any party in this proceeding has predicted such field-strength power spectral density for a multi-site wide-area LMS-M system's area or field of coverage and for Part 15 devices within that field.

Unlike in a licensed-spectrum system, Part 15 use over a wide area (or local one that is not fully controlled by one party) cannot be controlled and estimated, since under FCC rules any party may use Part 15 devices in systems or individually in such area, creating any level of signal. While each device's power is limited in Part 15 rules (and further limited in the Part 90 "Safe Harbor" rule, §90.361, if a transmitter's antenna is above certain heights), there is no limit to how many uncoordinated devices one or more parties may use in a given area. Thus, while a licensed system (that has internal limits on spectrum use and reuse in a given area) can be modeled for field-strength power levels, this cannot be done for Part 15 devices in an area, other than on a highly speculative basis. To make any such speculation, one must conduct extensive Part-15 use measurements (with spectrum analyzers) in a subject market or wide-area. However, uses of Part 15 devices either in a system or individually do not register their use with publicly, so there is

⁵ Hypothetically, there could be unlimited Part 15 devices all over such wide area, where even with relatively lower transmit power, said aggregate power in this field would be extremely high. More on this is discussed below. If there were such deployment of Part 15 devices, LMS-M licensees have an argument based on LMS-M Rulemaking Orders that this would violate the Safe Harbor rule since it was adopted under the expressed understanding that Part 15 transmitters would generally not be close to LMS-M base transmitters. However, that would only related to the height of Part 15 transmitters that cause discernable interference to the LMS-M transmitters.

no way to conduct such a survey. Thus, all that can be done is to measure use with a spectrum analyzer extensively over the subject wide area over a long period of time to get an idea of the current use and field-strength power levels. But that will not help much with future operations of real deployments of LMS-M vs. Part 15-- which is all that counts, since as just noted there is no control of and insufficient public records of actual and planned uses of unlicensed Part 15 devices, whether in systems or used individually. No one in this NPRM has done this first step, just noted, to measure actual Part 15 use.

2. Power, and PSD, further.. Regarding the NPRM's and Progeny's ideas on possible rule changes to adopt a power spectral density rule relative to Part 15 power: This is premature including since PSD limits/ allowances of one system base transmitter (or end-user transmitter) whether LMS-M or Part 15, does not determine actual or predicted average power levels over a wide field of coverage where LMS-M systems will operate, and in parts of which Part 15 systems and devices may operate. This determination and prediction, for the purposes expressed by the NPRM and Progeny, requires dozens of assumptions and complex modeling on the actual structure, required bit rates, coding, etc, and no one involved in this NPRM has proposed any set of assumptions, methods, and results. It is clear that the NPRM proposed power and spectral emission reductions would render LMS useless. Consider the contemplated 2.5 times additional power of such an LMS system compared to a part 15 device. In a cluttered environment a widely accepted propagation exponent is the inverse fourth power decrease in signal power with distance. Under these conditions LMS-M would have only a 26% greater range than

a part15 device. Even in a wide open line of sight scenario the range is only 58% greater for LMS. Clearly LMS-M needs all the power currently allocated and needs the high spectral density now available to track and locate vehicles as is the intention of LMS-M.

Current rules allow 30 W ERP for LMS-M wideband base transmitters and mobiles (and 300 W ERP for base transmitters when using the 250 kHz wide narrow blocks). The rules allow narrowband and wideband techniques. With narrowband, such as with 12.5-kHz wide transmit frequencies,⁶ each base transmitter would use and would need 30 W ERP at a particular location. This is only modest power for any widearea multi-site mobile communication system, especially one that principally serves vehicles at speed, which is required of LMS-M. If, instead of using multiple narrowband transmitters at one or more base-station locations, a licensee had good cause to use wideband technology, then for the same

⁶ Telesaurus and its Affiliates have already arranged and completed, under commercial contract, for type acceptance, via a well-known equipment vendor, of such narrowband radio equipment for some of its planned uses of LMS-M. This was described to FCC staff by Telesaurus in meetings and reflected in public filings before the FCC by Telesaurus, including in relation to the extension request filed by Warren Havens for his LMS-M licenses (now held by Telesaurus in which Mr. Havens has controlling interest). This type accepted equipment is traditional two-way radio equipment that must have at least 30 W ERP for viable use, and such power levels were stated in the FCC filings to obtain type approval. This and any similar equipment would be useless under Progeny's and the NPRM's unwarranted power-decimation proposals. Further, there are other narrowband technologies that are essential to the success and flexibility of LMS-M in the nation. Promising candidates include the new ETSI-standard Digital Mobile Radio ("DRM") technology, which essentially has features similar to P25 and Tetra (used for core public safety personnel) but is targeted for other mission- or business- critical uses. DRM is designed to operate from VHF range to the 900 MHz ranges (all the land mobile ranges in EU nations). Telesaurus and its advisors are active in investigating DMR development via communications with coordinators of the DRM standards and MOU group.

coverage range a multiple of the 30 W EPR would be needed related to the multiple larger quantity of spectrum in the wideband channel. PDS must be considered on this basis. However, there is no record in this proceeding on the need for and types of wideband technology, services, system architectures, etc. proposes to warrant any power (or other) rule change proceeding at this time. The Progeny and the related NPRM proposals on PSD for LMS-M would, as noted above, drastically reduce currently permitted power, and make narrowband impossible and wideband also futile except for serving very restricted areas, as served by Part 15 already (better served that LMS-M could ever serve, when the massive amounts of 5 GHz and other unlicensed spectrum outside 902-928 MHz is used).

Regarding this proximity issue In the 1990's rulemaking Orders that established LMS-M, the Commission clearly intended and explained that Part 15 transmitters will generally be located substantially away from LMS-M base station, and the "Safe Harbor" rule was based on this assumption. This assumption, in turn, was related to the Commission's assumption that LMS-M system would be relatively high-power (30 W ERP, with 300 W EPR for the narrow 205-kHz block used for base transmit) and generally located on high antenna sites to cover vehicles on roadways. This spatial separation is a reasonable assumption, is desirable for LMS-M and Part 15 users, and is reasonably secured by the current rules allowances and restrictions, as discussed in the Telesaurus Amended Comments. Also, this has the affect of also creating a temporal separation, since LMS-M systems designed to primarily serve vehicles on roadways will have peak use at "rush hours," when there will be an inverse relatively low use by persons in homes,

workplaces, and public “hot spots” of any form of wireless, including via Part 15 devices.

Outdoor Part 15. Progeny does not factor in outdoor part 15 interference. Assuming only indoor devices is artificial and unrealistic (and could lead to erroneous results).

Multi-site systems. Progeny failed in its technical demonstrations to factor in multi-site systems that will be required for wide-area LMS-M, including to meet FCC coverage requirements. In fact Progeny never mentions anything about vehicular location and tracking. In such systems, there is substantial overlap in coverage (field-strength power) from nearby sites. To predict a LMS-M system’s interaction with an indoor Part 15 system based on using one LMS-M base station is artificial (and could lead to erroneous results).

Mobile talk back. Progeny also failed to factor in transmissions from end-user mobile radios to the base stations. Progeny assumes LMS-M will use two-way communication, but does not deal with mobile to base links. They claim without proof that mobile transmissions have negligible effect. To predict a LMS-M system’s interaction with a Part 15 system based without factoring in mobiles is artificial (and could lead to erroneous results).

Terrestrial multilateration, and GPS. Progeny does not deal with terrestrial multilateration, the one required LMS-M service, at least in the white paper. If this is performed by signals from bases to each mobile, it adds to the transmissions from the bases as compared to a system used only for communication. To predict a LMS-

M system's interaction with a Part 15 system without factoring in a defined multilateration component is artificial (and could lead to erroneous results).

If multilateration is performed by signals from each mobile to bases, this adds to the aggregate average LMS-M spectrum power in the field.⁷ In addition, LMS-M rules and FCC Orders creating the rules make clear that the location function must be (and is the only service that must be) performed, and any communication must be "in relation to" the location service. Thus, the location service will use substantial amount of the total spectrum capacity in any given time and space relative to the communication service. Even if GPS is used, GPS will not provide adequate coverage or accuracy or speed of location fix all of the time, and its location fixes still must be transmitted back to the bases for use by dispatchers and other authorized parties. Terrestrial multilateration remains a needed component of very widearea mission-critical location service, for full-area coverage, redundancy, and reliability. GPS can also be jammed and spoofed easily, relative to secured private-system terrestrial multilateration.

In addition, there is currently under development in EU nations a standard for vehicle location on highways for ITS mass market utilization that combines GPS with certain terrestrial methods. Telesaurus, which independently was developing

⁷ If LMS-M multilateration is by multiple base stations sending signals to each mobile, then that also will use more spectrum, and thus create higher power levels in the field, than a system only providing communication services, unless said multilateration systems uses only the communication system signals. However, that cannot be assumed, and certainly Progeny has not come close to asserting and demonstrating this. For the most robust and also cost effective location system, it should be integrated with but also substantially independent of the communication system, and this will necessarily involve more use of LMS-M spectrum and more aggregate signal levels in the field than LMS-M used only for communication services.

similar combination, is investigating this since standards, particularly ITS standards, are highly desirable. The planned, standards-based hybrid location technique would employ GPS, LMS-M, and DSRC and yield major improvements in accuracy (especially directly along and near highways) reliability and redundancy over any standalone system.

Again, regarding the Progeny Comments, by not demonstrating how they will perform the required location service, or why they should be relieved of this obligation, Progeny's position is defective.

Quantity of LMS-M at bases, and multi-site network issues. Progeny does not state how much LMS-M spectrum, in their suggested systems, will be used at a particular base station location, and whether they will employ simulcast or frequency reuse techniques, in the multi-cell wide area systems required for wide-area coverage. Wide-area coverage is needed to meet FCC coverage requirements as well as to be commercially viable, and Progeny and the NPRM do not suggest otherwise. (Any one-cell system at 30 W EPR will not cover much territory, and only a small fraction of the largest metro areas and the percentage of population required to meet FCC coverage-construction rules.

QoS ("Quality of Service") and service definitions. As indicated above, planning and modeling a useful and commercially viable service, especially in related to interference by other systems and sources, requires more than power and interference considerations. An entire system design, including uplink, downlink, bit rates, QoS, access schemes, bandwidth allocation, offered voice and data

services, etc need to be considered. Progeny does not define the services to be provided, and for each, the data rate needed, any real-time QoS, symmetry or asymmetry involved, etc., Without stating these, is not possible to estimate use of LMS-M spectrum, its affect on Part 15 use, and vice versa. Rather, Progeny seeks rule changes to allow basically any sort of service. Thus, their model must involve all of these, or at least the worst case, which would be high-data-rate real-time two-way service, such as two-way videoconferencing or the like.

Part 15 rules are modified by the LMS-M Part 15 "Safe Harbor" rule.

Regarding permissible Part 15 technical allowances in 902-918 MHz: what must be modeled is not the allowances under Part 15 rules per se (to the degree this can be done: see note above on why this is highly speculative), but such allowances as restricted by the LMS rule on the Part 15 "Safe Harbor," §90.361.⁸ Progeny did not take this into consideration. Their overly simplistic model merely assumed indoor use of certain limited examples of the myriad Part 15 devices used in 902-928 MHz.

⁸ The FCC did not, as they should have, updated this LMS Part 90 rule to reflect the change in Part 15 rules made in recent years that allow certain new digital techniques (other than FHSS and DSSS), at lower power than had previously been allowed. Thus, the current Safe Harbor rule gives the power allowed if FHSS or DSSS is allowed: it repeats the Part 15 rule power allowance, then reduces it above certain heights. The fact that these Part 15 changes were made that affect LMS, including this Safe Harbor rule, without such change being noticed as affecting LMS in a Part 90, Subpart M proceeding (along with the relevant Part 15 docket) is the subject of two pending challenges by Telesaurus and its Affiliates (in this case, Warren Havens) before the FCC and the DC Circuit Court. It is ironic that here, in this Part 90 LMS-M NPRM, the FCC staff seem so concerned about protecting unlicensed Part 15, where in the just noted Part 15 flexibility dockets, they had no concern whatsoever about the obvious affects on licensed LMS-M to be deployed for ITS wireless. That is "politics" at best, not regulation in the public interest.

It did not factor in outdoor use of Part 15 either within or outside of the Safe Harbor parameters.

Progeny argument against power reduction call for it to accept current rules focus on service to vehicles, and not seek general “flexibility.” that lower power would increase proximity of LMS-M base stations to Part 15 devices, and its request to maintain current power (not considering here the Progeny translation into PSD-- see below) calls for its commitment to maintain current rules to keep space and time separation.

Progeny suggests (as Telesaurus does, but largely by different methods, and for different purposes) that less LMS-M power will result in more base stations closer to Part 15 systems or devices. However, Progeny does not offer to restrict or focus their desired more “flexible” services (more flexible than LMS that must principally serve vehicles with required location and related communication) on areas away from those most used by low-power Part 15 devices. If Progeny in fact believes that LMS-M should not be deployed in close proximity to the areas where Part 15 devices are principally employed, then that leaves what—it leaves the roadways (and of course the expanses of rural areas)—and that is exactly what the current rules both intended and practically achieve. As Telesaurus argued in its Amended Comments, Part 15 should be used as the primary form of wireless in private facilities and public hot spots, since it is a better solution (at least in some years as the technology advances as the industry contemplates including linking of secure WLANs into public and private networks). Indeed, for years in public

presentations Telesaurus and Affiliates has advocated wide-area wireless primarily serving vehicles that hands off to such WLANS when in proximity, and that includes WLANs in the vehicles along with the LMS-S serviced wide area system (WWAN).

In contrast to the above-noted Progeny position, what Telesaurus argues is that the FCC was correct in their Orders allocating LMS-M and making LMS rules: that by requiring service primarily to vehicles, and not allowing interconnection except in emergencies, and requiring that the communication function be related to the required location, this affectively creates a separation in space between LMS-M systems covering the roadways and Part 15 systems in the more dense use localities (homes, workplaces, hot spots), and also creates separation in time since peak vehicle traffic hours are the inverse, flip-side of peak telecommunication uses at these localities.

B block sharing not factored in. The Block B spectrum is shared between the LMS-M Block B licensee and the Nonmultilateration service and its licensees. Progeny did not factor this in its Comments and simplistic technical arguments.

Respectfully,

[Electronically submitted. Signature on file.]

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